REMARKS

STATUS OF CLAIMS

Claims 1, 6, 11-16, 20, 27-29, 31, 38-40, 46-49, and 54-57 have been amended.

Claims 58-59 have been added.

No claims have been cancelled or withdrawn.

Claims 1-16, 20-29, 31-40, and 42-59 are currently pending in the application.

SUMMARY OF THE REJECTIONS/OBJECTIONS

Claims 1-3, 5-10, 12, 14, 16, 20-24, 27, 29, 31-35, 38, 40, 42-45, 48, 50-53, and 56 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 6,728,670 issued to Schenkel et al. (" *Schenkel* ") in view of U.S. Patent Number 6,516,345 issued to Kracht (" *Kracht* "). Claims 4, 11, 15, 46, 49, 54, and 57 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 6,628,623 issued to Noy (" *Noy*"). Claims 13, 25, 26, 28, 36-37, 39, 47, and 55 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Schenkel* in view of *Kracht* and in further view of U.S. Patent Number 5,347,167 issued to Singh (" *Singh*"). The rejections are respectfully traversed.

A. CLAIM 1

(1) INTRODUCTION TO CLAIM 1

Claim 1 features:

"A method for determining one or more logical interconnections among a plurality of network devices that are interconnected in a network in an indefinite relationship, wherein a power state is associated with a first network device, the method comprising the computer-implemented steps of:

changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state**;

identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device; and

when the alteration occurs at the second network device, creating and storing first information representing a logical connection of the first network device to the second network device." (Emphasis added.)

As amended herein, Claim 1 features "changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state**." This amendment is fully supported by the Application. For example, the Application states that "the power state of a device is changed, as indicated in block 220 [of FIG. 2]. For example, in FIG. 1, the initial power state of the CPU 130 may be **unpowered** (or "*off*"), but then **power is supplied** to CPU 130 (e.g., CPU 130 is turned *on*)." (Application, page 10, lines 20-22; emphasis added.) As another example, the Application explains that the " 'power cycling' of a network device means that the power state of the network device is changed or altered from what the power state was immediately prior to the power cycling action. The power state of a network device before power cycling may be '*off*,' **unpowered**, or ..."*on*," **powered**...." (Application, page 22, lines 20-24; emphasis added.)

Similar amendments are made to independent Claims 6, 12, 16, 20, 27-29, 31, and 38 –40, all of which are fully supported by the Application, as indicated above. Also, amendments to dependent Claims 11, 13-15, 46-49, and 54-57 have been made consistent with the amendments of the corresponding independent claims. Finally, method Claims 58-59 have been added and contain features that are the same as those in computer-readable medium Claims 25-26 and apparatus Claims 36-37. Therefore, the amendments to Claims 1, 6, 11-16, 20, 27-29, 31, 38-40, 46-49, and 54-57 and the addition of Claims 58-59 do not add any new matter.

(2) THE FINAL OFFICE ACTION'S CITATIONS FROM *SCHENKEL*

The Final Office Action states that *Schenkel* discloses "changing the power state of the first network device; identifying whether an alteration occurs at a second network device in response to changing the power state of the first network device (column 2, lines 20-40; shows a signal sent from a source device to a destination device, Figure 2, and column 3,

lines 18-32.)" However, as the Applicant discussed in the response to the First Office Action, the first cited portion of *Schenkel* describes measuring the traffic output of one device (e.g., the sequence of bursts of packets formed of orthogonal signals), measuring the traffic input of another device, and determining connections between devices or a sequence of connections between devices based on whether the measured traffic between the two devices is similar or not. (Col. 2, lines 20-40.) The remaining cited portions of *Schenkel* describe a series of four devices, A through D, connected in series in which the output of one device is the input to the next device. (Figure 2, Col. 3, lines 18-32.)

The mere sending of a signal comprised of a sequence of packet bursts is not the same as "changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state**" as in Claim 1. In *Schenkel*, the sending of packet bursts does not change the power state of the sending device, the receiving device, or any other device, which is a fundamental difference between *Schenkel* and the approach of Claim 1. In fact, some changes to the power state of a sending device, such as from powered to unpowered, would render the approach of *Schenkel* inoperative because the sending device would be incapable of sending the signal. Even other power state changes, such as by turning a device from unpowered to powered, would not result in sending the sequence of bursts of packets as disclosed in *Schenkel*.

In addition, in the "Response to Arguments" section, the Final Office Action states that "Schenkel teaches the stimulation of idle devices by using signal bursts in a network to allow discovery of network topology. *Signal bursts are sent to a device until no longer idle, **which is a change of the power state***. Signal bursts can then be sent across this device to other devices. The topology is then determined by examining the response, or alteration, in other devices, which are connected to the idled device (For example; in column 19, lines 32-62, column 22, line 49 – column 23, line 28, and column 25, line 60 – column 26, line 19)." (Emphasis added.)

The Applicant respectfully disagrees that sending signal bursts to an idle device until the device is no longer idle is a change of the power state, based on the definition of an "idle" device and "idleness" as provided in *Schenkel*. Specifically, *Schenkel* states:

> Stimulation of idle devices in a network allow their connections to be identified directly. The present invention can determine that a device is **idle** ***because the volume of traffic in or out of it is*** **insignificant**. It can then

> instruct a signal burst to be sent to or across this device in order to generate ***enough traffic*** to accurately locate it in the network...***Idleness*** can be expressed as having ***a mean level of traffic below some*** **cutoff** to be chosen by the operator. A convenient value of this cutoff is 5 units of activity per sampling period as this provides the classic chi-squared formulation with sufficient data for its basic assumptions to be reasonable accurate. (Col. 19, lines 33-46; emphasis added.)

Therefore, *Schenkel* clearly defines an idle device as a device for which the traffic is not zero, but merely insignificant, meaning that the traffic through the device is below a cutoff value does not allow for accurate identification of the network connections. The use of a signal burst to increase the traffic for an idle device so that the device can be located indicates that the device is already in a "powered" power state (e.g., the device is "on"). The sending of the signal burst does not change the power state from unpowered to powered or from off to on (or vice versa). Rather, the signal burst supplies sufficient traffic so that the statistical comparison of the traffic sent to the traffic received is meaningful. Because the basis for *Schenkel's* connection identification approach is a statistical method, sufficient traffic must be used in order to make a statistically meaningful comparison between the traffic sent and the traffic received, and therefore conclude that the sending device and the receiving device are connected.

Thus, an "idle" device as defined in *Schenkel* is a device that is in the "powered" power state (or "on"), as opposed to an "unpowered" power state (or "off"). Changing the status of the device in *Schenkel* from "idle" to "not idle" merely means that there is sufficient traffic through or to the device for a statistically meaningful comparison of traffic sent versus traffic received, but the power state of the device remains unchanged in the powered or "on" power state. If the initial power state of an idle device were unpowered or off, then the device would be unable to receive the signal burst in Schenkel's approach.

In contrast to *Schenkel*, Claim 1 features "changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state**." Neither the cited portions of *Schenkel* or any other portion of *Schenkel* discloses anything about changing the power state from "an unpowered state to a powered state" as featured in Claim 1, because *Schenkel's* technique of changing the status of an "idle" device, that is already powered but merely has too little traffic to accurately use

Schenkel's statistics-based connection identification approach, by sending a signal burst merely increases the traffic to the device still leaves the device in a powered power state. Furthermore, there is nothing in either the cited portions of *Schenkel* or any other portion of *Schenkel* about changing the power state from "the powered state to the unpowered state," as featured in Claim 1.

While *Schenkel* discloses an approach for determining a network topology by sending a signal consisting of a sequence of bursts of packets and measuring such packet traffic at the output of a sending device and the input of a receiving device, including the stimulation of an "idle" device for which the traffic is too low to make an accurate statistical comparison, this does not relate to "changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state**" as featured in Claim 1 of the present application.

(4) CONCLUSION OF DISCUSSION OF CLAIM 1

Because *Schenkel* fails to disclose, teach, suggest, or in any way render obvious "changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state,**" the Applicant respectfully submits that, for at least the reasons stated above, Claim 1 is allowable over *Schenkel* and is in condition for allowance.

B. CLAIMS 6, 12, 16, 20, 27-29, 31, AND 38-40

Claims 6, 12, 16, 20, 27-29, 31, and 38-40 contain features that are either the same as or similar to those described above with respect to Claim 1. In particular, Claims 20 and 31 both feature "changing the power state of the first network device **from either (a) an unpowered state to a powered state or (b) from the powered state to the unpowered state**," which is the same as in Claim 1. Similarly, Claims 6, 27, and 38 feature "activating a particular network device of said set of specified network devices **by supplying power to the particular network device that previously was not supplied with power**," which is a similar feature to that in Claim 1. Similarly, Claims 12, 28, and 39 feature "sending a signal from a control device that results in a change in a power state of a first network device in response to the signal, **wherein the power state changes from either powered to**

unpowered or from unpowered to powered," which is a similar feature to that in Claim 1. Finally, Claims 16, 29, and 40 feature "power cycling a first network device **from either "off" to "on" or from "on" to "off**," which is a similar feature as that in Claim 1.

Therefore, based on at least the reasons stated above with respect to Claim 1, the Applicant respectfully submits that Claims 6, 12, 16, 20, 27-29, 31, and 38-40 are allowable over the art of record and are in condition for allowance.

C. CLAIMS 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, 55-57, AND 58-59

Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, 55-57, and 58-59 are dependent upon Claims 1, 6, 12, 20, 31, 27, 28, 38, 39, and 1, respectively, and thus include each and every feature of the corresponding independent claims. Each of Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, 55-57, and 58-59 is therefore allowable for the reasons given above for the Claims 1, 6, 12, 20, 31, 27, 28, 38, and 39. In addition, each of Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, 55-57, and 58-59 introduces one or more additional limitations that independently render it patentable. However, due to the fundamental differences already identified and to expedite the positive resolution of this case, a separate discussion of those limitations is not included at this time. Therefore, it is respectfully submitted that Claims 2-5, 7-11, 13-15, 21-26, 32-37, 42-46, 47-49, 50-54, 55-57, and 58-59 are allowable for the reasons given above with respect to Claims 1, 6, 12, 20, 31, 27, 28, 38, and 39.

CONCLUSION

The Applicant believes that all issues raised in the Office Action have been addressed and that allowance of the pending claims is appropriate. After entry of the amendments, further examination on the merits is respectfully requested.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

To the extent necessary to make this reply timely filed, the Applicant petitions for an extension of time under 37 C.F.R. § 1.136.

If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,
HICKMAN PALERMO TRUONG & BECKER LLP

Craig G. Holmes
Reg. No. 44,770

Date: July 20, 2005

2055 Gateway Place, Suite 550
San Jose, CA 95110-1089
Telephone: (408) 414-1207
Facsimile: (408) 414-1076

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Hon. Commissioner for Patents, Mail Stop RCE, P.O. Box 1450, Alexandria, VA 22313-1450.

on 7/20/05 by Tracy Reynolds